

This guide has been prepared by CTB/McGraw-Hill to provide an overview for interpreting reports generated from the Missouri Assessment Program (MAP). It is intended to help educators apply MAP data to the needs of individual students and the district as a whole.

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## **Education Assessment: A Primary Tool**

Assessment, or testing, fulfills a vital role in today's education environment. Assessment results often are a major force in shaping public perceptions about the capabilities of our students and the quality of our schools. As a primary tool for educators and policymakers, assessment is used for many important purposes. Educators use assessment results to help improve teaching and learning. They also use assessment results to evaluate programs and schools. Assessment is also used to generate the data upon which policy decisions are made. Because of the important roles it performs, educational assessment is a foundation activity in every school, district, and state. It is a vital complement to innovation, higher standards, and educational excellence.

The Missouri Assessment Program (MAP) is one of several educational reforms mandated by the Outstanding Schools Act of 1993. As a result of this act, the State Board of Education directed the Missouri Department of Elementary and Secondary Education to identify the knowledge, skills, and competencies that Missouri students should acquire by the time they complete high school and to evaluate student progress toward those academic standards. The department worked with teachers, school administrators, parents, and business professionals from throughout the state to develop the Show-Me Standards. The department has worked with the same constituencies to develop an assessment system that evaluates students' proficiencies as represented by the Show-Me Standards.

The Spring 2004 MAP includes the following assessments:

#### Required

Communication Arts for Grades 3, 7, and 11 Mathematics for Grades 4, 8, and 10

#### **Voluntary**

Science for Grades 3, 7, and 10 Social Studies for Grades 4, 8, and 11

Each assessment could require three to five hours of test administration time and may include any of three types of test items: selected-response items, constructed-response items, and performance events (including writing prompts).

The selected-response (also known as multiple-choice) items present students with a question followed by three or four response options. For the Communication Arts and Mathematics assessments, the selected-response items in Session 3 are taken from the Survey edition of TerraNova<sup>®</sup>, the Second Edition, a nationally normed test developed by CTB/McGraw-Hill. For the Science and Social Studies assessments, Session 3, Part 1, is also from TerraNova.

The **constructed-response items** require students to supply (rather than select) an appropriate response. Students are asked to show their work in answering questions. In addition to measuring students' content knowledge, constructed-response items provide information about how students arrive at their answers.

The **performance events** used in Missouri's statewide assessment require students to work through more complicated items. Performance events often allow for more than one approach to get a correct answer. The advantage of this type of assessment item is that it provides insight into a student's ability to apply knowledge and understanding in real-life situations.

The writing prompt, a special type of performance event that appears in the Communication Arts assessment, is an open-ended item that requires students to demonstrate their writing proficiency. Writing is scored holistically using a four-point scoring guide.

The department uses the information obtained through MAP to monitor the progress of Missouri's students in meeting the Show-Me Standards, to inform the public and the state legislature about students' performance, and to help make informed decisions about educational issues. The information obtained through MAP provides data that help improve student services in the state.



# **Show-Me Content Standards**

MAP items are aligned with the Show-Me Standards. The Show-Me Content Standards are grouped by content area.

#### **Communication Arts**

In Communication Arts, students in Missouri public schools will acquire a solid foundation that includes knowledge of and proficiency in

- speaking and writing standard English (including grammar, usage, punctuation, spelling, capitalization)
- 2. reading and evaluating fiction, poetry, and drama
- 3. reading and evaluating nonfiction works and material (such as biographies, newspapers, technical manuals)
- 4. writing formally (such as reports, narratives, essays) and informally (such as outlines, notes)
- comprehending and evaluating content and artistic aspects of oral and visual presentations (such as storytelling, debates, lectures, multi-media productions)
- 6. participating in formal and informal presentations and discussions of issues and ideas
- identifying and evaluating relationships between language and culture

#### Science

In Science, students in Missouri public schools will acquire a solid foundation that includes knowledge of

- 1. properties and principles of matter and energy
- 2. properties and principles of force and motion
- 3. characteristics and interactions of living organisms
- changes in ecosystems and interaction of organisms with their environments
- processes (such as plate movement, water cycle, air flow) and interactions of Earth's biosphere, atmosphere, lithosphere, and hydrosphere
- composition and structure of the universe and the motions of the objects within it
- 7. processes of scientific inquiry (such as formulating and testing hypotheses)
- 8. impact of science, technology, and human activity on resources and the environment

#### **Mathematics**

In Mathematics, students in Missouri public schools will acquire a solid foundation that includes knowledge of

- addition, subtraction, multiplication, and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations
- geometric and spatial sense involving measurement (including length, area, volume), trigonometry, and similarity and transformations of shapes
- 3. data analysis, probability, and statistics
- 4. patterns and relationships within and among functions and algebraic, geometric, and trigonometric concepts
- mathematical systems (including real numbers, whole numbers, integers, fractions), geometry, and number theory (including primes, factors, multiples)
- discrete mathematics (such as graph theory, counting techniques, matrices)

### **Social Studies**

In Social Studies, students in Missouri public schools will acquire a solid foundation that includes knowledge of

- principles expressed in the documents shaping constitutional democracy in the United States
- continuity and change in the history of Missouri, the United States, and the world
- 3. principles and processes of governance systems
- economic concepts (including productivity and the market system) and principles (including the laws of supply and demand)
- the major elements of geographical study and analysis (such as location, place, movement, regions) and their relationships to changes in society and environment
- relationships of the individual and groups to institutions and cultural traditions
- 7. the use of tools of social science inquiry (such as surveys, statistics, maps, documents)



# Show-Me Process Standards

The Show-Me Process Standards are grouped by goals. For a more detailed explanation of the process standards, please refer to the Show-Me Standards document or the DESE website (http://www.dese.mo.gov/standards/index.html).

# Goal 1—Gather, analyze & apply information

#### Standards:

- 1. develop research question/ideas
- 2. conduct research
- 3. design/conduct investigations
- 4. organize information using tools
- 5. comprehend/evaluate resources
- 6. discover/evaluate relationships
- 7. evaluate information
- 8. organize data and ideas
- 9. compare past and present societies
- 10. apply information, ideas, skills

# **Goal 2—Communicate effectively**

#### Standards:

- 1. plan and make presentations
- 2. revise communications
- 3. exchange ideas and take others' perspectives
- 4. present perceptions and ideas
- 5. produce works in the arts
- 6. apply communication techniques
- 7. use information technology

## Goal 3—Recognize and solve problems

#### Standards:

- 1. identify and define problems
- 2. apply others' strategies
- 3. apply one's own strategies
- 4. evaluate problem-solving processes
- 5. reason logically
- 6. examine solutions from many perspectives
- 7. evaluate strategies
- 8. assess consequences

# Goal 4—Take social responsibility

#### Standards:

- 1. support decisions
- 2. understand and apply citizenship rights
- 3. analyze individuals' responsibilities
- 4. practice honesty and integrity
- 5. develop/revise plans of action
- 6. identify cooperative tasks
- 7. apply safety/health practices
- 8. explore/seek opportunities



# Assessment Terms and Types of Scores

Familiarity with the testing terms and the types of scores used in the MAP reports and other components will help you interpret test information accurately and efficiently.

#### **MAP Scale Score**

CTB/McGraw-Hill uses the students' correct responses and points earned to derive a MAP Scale Score. The scale score describes achievement on a continuum that in most cases spans the complete range of Grades 3 through 11. These scores range in value from 422 to 979, across grade levels and content areas. The MAP score ranges can be found with the achievement-level descriptors beginning on page 6 of this guide. Scale scores can be added, subtracted, and averaged. A student receives a MAP Scale Score only when all three sessions of the test have been taken, and that MAP Scale Score determines the student's achievement level.

#### **Achievement Levels**

Student performance can be reported in terms of five performance, or achievement, levels that describe a pathway to proficiency. Each achievement level represents standards of performance for each assessed content area (Communication Arts, Mathematics, Science, and Social Studies). Panels drawn from educational, business, and professional communities determined the standards. Achievement-level scores provide a description of what students can do in terms of the content and skills assessed. These scores are a means of comparing test results with standards of academic performance.

#### TerraNova National Percentile

National Percentiles (NPs) are determined from Session 3 of the Communication Arts, Mathematics, Science, and Social Studies tests. This session is the nationally norm-referenced *TerraNova* Survey. The NPs indicate what percentage of students' scores in the norming sample for a given grade fell below a certain point. For example, a student who is at the twenty-fifth NP scored higher than 25 percent of the norm group. The fiftieth percentile is the middle score—also called the *median*—above and below which half the students scored. NPs should not be added, subtracted, or averaged.

#### Median NP

This score is used to describe central tendency. The median is the middle score in a set of ranked scores. It divides the distribution into two equal halves. Medians are less affected by extreme scores than are means. The median is the preferred score for comparing groups that have many very high, or very low, scores.

#### NP of the Mean NCE

This score is also used to describe central tendency. The Normal Curve Equivalent (NCE) is an equal-interval scale and can be treated arithmetically. The mean NCE is computed by adding the NCE scores of all the students in the group with MAP scores and then dividing by that number of students. The NP for that "arithmetic average" (mean NCE) is included in TerraNova, the Second Edition, Norms Book, Spring.

# **Constructed-Response Item**

This is an assessment unit with directions and a question or a problem that requires a written, pictorial, or graphic response. It is sometimes called an *open-ended item*.

# **Selected-Response Item**

This is a question or an incomplete statement that is followed by answer choices, one of which is the correct or best answer. It is also referred to as a *multiple-choice item*.

#### **Confidence Band**

This defines a range within which a test score would fall, taking into account the error in the measurement process. The confidence band expresses performance in terms of a score interval rather than an absolute score point.



# First Steps in Analyzing Data

The MAP reports provide useful information for determining the performance of students in your school and classroom. Emphasis should be placed on identifying students who are below proficiency in a particular test area so that a course of action may be determined that will meet the students' specific needs. The following steps indicate how to use results from these reports to help individuals who have not met the level of proficiency in one or more areas.

- Identify any students who are below proficiency in a test area by looking at the Student Roster. An achievement level of Nearing Proficiency, Progressing, or Step 1 indicates that the student may need assistance in that test area.
- Identify those standards in which a student's performance is low. This is indicated on the Student Report in the area labeled "Content/ Knowledge Standards" in the percent-of-pointsearned column.
- Use Missouri's Curriculum Frameworks and Grade-Level Expectations to determine what type of instructional assistance can and should be provided to achieve the Show-Me Standards. Consider whether professional development will be necessary.
- Consider the use of a locally designed assessment aligned to the Show-Me Standards to provide more detailed information for each student in specific test areas.

Information about content standards can be very helpful in determining how well students in your school are progressing in each content area. By following the steps below, educators can use the Content Standards Summary Report to review curriculum and instruction.

- Find the local percent on the Content Standards Summary Report.
- For each standard, determine the difference between your local percent and the state percent.
   Mark each standard with a plus (+) if your local percent is higher than the state percent, and a minus (-) if it is below the state percent.
- Beginning with the standards that indicate weaknesses, determine the skills measured by these standards by referencing the Curriculum Frameworks.
- 4. Review the curriculum to determine the grade and time of year that students are presented with the knowledge and skills, concepts, applications, and problem-solving strategies necessary to perform tasks that relate to the standards to determine if they are taught locally and if they are assessed locally prior to the MAP.
- If these skills are addressed in the curriculum prior to the test dates, determine whether instruction is provided to all students or only to certain groups.
- Review the classroom assessments by which students demonstrate acquisition of the necessary knowledge and skills, concepts, applications, and problem-solving strategies.
   Review the opportunities that provide practical application and problem-solving situations.
- Align local assessments with MAP assessment procedures.



# Achievement Levels

# Communication Arts Abbreviated Achievement-Level Descriptors

#### Grade 3

#### Step 1

Reading—Students locate general information in fiction and nonfiction; follow brief directions; and identify simple similarities, basic story elements, and obvious problems. Writing—Students minimally address the topic; attempt to write simple sentences; and demonstrate minimal knowledge of Standard English.

MAP score range: 472-592.

#### **Progressing**

Reading—Students locate specific information in fiction and nonfiction; make basic comparisons; begin to organize information in a provided form; and begin to use text to initiate research. Writing—Students attempt to address the topic; write complete sentences; and begin to demonstrate basic knowledge of Standard English.

MAP score range: 593-622.

#### **Nearing Proficiency**

Reading—Students identify the elements of fiction and nonfiction, relevant textual details, and obvious cause-effect relationships; draw conclusions; organize information in a provided form; use text to initiate research; and read and comprehend a variety of texts. Writing—Students begin to write for a variety of purposes and apply rules of Standard English.

MAP score range: 623-654.

#### **Proficient**

Reading—Students comprehend the elements of fiction and nonfiction; identify main ideas, details, synonyms, and antonyms; identify and define problems; compare; contrast; make and explain predictions and inferences; and identify implied cause and effect. Writing—Students write for a variety of purposes and audiences; write in an organized manner using details; and demonstrate control of Standard English.

MAP score range: 655-706.

#### **Advanced**

Reading—Students summarize and interpret the elements of fiction and nonfiction; make complex inferences; and interpret figurative language. Writing—Students write effectively for a variety of purposes and audiences; provide specific and relevant details; develop a controlling idea; and clearly demonstrate a command of Standard English.

MAP score range: 707-849.

#### Grade 7

#### Step 1

Reading—Students comprehend literal information in fiction and nonfiction and attempt to use context clues to determine meaning. Writing—Students minimally address the topic; attempt to write complete sentences; and demonstrate minimal knowledge of Standard English.

MAP score range: 528-642.

#### **Progressing**

Reading—Students comprehend main ideas in fiction and nonfiction; recognize obvious similarities, simple cause-effect relationships, literary elements, and author's purpose; organize

information; and use text to initiate research. Writing—Students use simple sentences with minimal details and organization and demonstrate knowledge of Standard English.

MAP score range: 643-666.

#### **Nearing Proficiency**

Reading—Students comprehend a variety of fiction and nonfiction works; support conclusions; use context clues; compare and contrast; create graphic organizers; understand literary elements; recognize figurative language; explain cause and effect; and recognize problem-solving processes. Writing—Students use complete sentences, supporting details, basic transitions, and apply rules of Standard English.

MAP score range: 667-691.

#### **Proficient**

Reading—Students interpret and explain fiction and nonfiction works, figurative language, mood, and theme; identify implied cause and effect; infer and predict; evaluate problem-solving strategies and solutions; develop research ideas. Writing—Students use precise language, supporting details, varied sentences; write for a variety of purposes, audiences; and demonstrate control of Standard English.

MAP score range: 692-736.

#### **Advanced**

Reading—Students analyze fiction and nonfiction, literary elements, techniques, theme, mood, author's purpose and perspective, and characters' motivation; apply information to new situations; explain reliability of sources; and identify and evaluate alternative solutions. Writing—Students use vivid language and clearly demonstrate a command of Standard English.

MAP score range: 737-900.

#### Grade 11

#### Step 1

Reading—Students extract main ideas from fiction and nonfiction; recognize basic patterns and organize information in a provided form; and use context clues to determine literal meaning and recognize problems. Writing—Students address a topic; show evidence of purpose; respond in generalities; and display a limited vocabulary and knowledge of Standard English.

MAP score range: 563-686.

#### **Progressing**

Reading—Students comprehend simple fiction and nonfiction; initiate research; compare source accuracy and reliability; identify author's purpose, main idea, and basic literary elements; organize information; and recognize consequences. Writing—Students write for intended purpose and audience; generally support main idea; demonstrate organization; and begin to use proper sentence structure and Standard English.

MAP score range: 687-705.

#### **Nearing Proficiency**

Reading—Students comprehend a variety of fiction and nonfiction; develop research ideas; identify author's techniques; question accuracy; discover relationships within and between texts; create graphic organizers; identify strategies, solutions and consequences; and explain reasoning. Writing—Students write for

a variety of purposes and audiences; support main idea with general details; and apply rules of Standard English.

MAP score range: 706-737.

#### **Proficient**

Reading—Students analyze fiction and nonfiction; create organizers; explain research ideas; evaluate accuracy and relationships; predict; use details to support inferences; and identify multiple perspectives and effectiveness of strategies and solutions. Writing—Students use organization, specific support, precise language, transitions, individual style/voice; demonstrate control of sentences and Standard English.

MAP score range: 738-782.

#### Advanced

Reading—Students evaluate fiction and nonfiction; analyze literary elements; evaluate reliability of sources; make complicated inferences; analyze and evaluate strategies and solutions from multiple perspectives; and create organizers for analysis and presentation. Writing—Students use vivid details; advanced stylistic techniques; and clearly demonstrate a command of sentence structure and Standard English.

MAP score range: 783-915.

# Mathematics Abbreviated Achievement-Level Descriptors

#### Grade 4

#### Step 1

Students add and subtract whole numbers without regrouping; identify congruent shapes; read simple tables, graphs, and charts; identify and complete simple numeric patterns; order positive integers; make comparisons; and identify and classify geometric figures.

MAP score range: 422-567.

#### **Progressing**

Students use strategies to solve problems; identify fractions using models; identify values of coins; add and subtract whole numbers; solve monetary problems; compare geometric shapes, rotations, similarity; read Fahrenheit thermometers; use data from displays; use concept of frequency of occurrences; apply probability; create patterns; recognize evens, odds, ordinals, multiples; make logical decisions.

MAP score range: 568-613.

#### **Nearing Proficiency**

Students identify missing information; multiply whole numbers; determine number sentences and expressions for situations; relate equivalent fractions; identify two- or three-dimensional figures, symmetric properties; read analog and digital time; label points in coordinate system; organize, interpret, predict data; recognize occurrence of likely events; extend patterns; relate operations; and use Venn diagrams.

MAP score range: 614-652.

#### **Proficient**

Students communicate mathematical processes; determine reasonableness of an answer; solve multi-step problems, spatial problems, logic problems; relate fractions, decimals; compare two-or three-dimensional shapes; measure length, temperature; analyze data displays; describe and extend numeric and pictorial patterns; use number theory; identify, develop algorithms; order like decimals, fractions; construct data displays.

MAP score range: 653-691.

#### Advanced

Students infer from visual models; explore division; relate counting, grouping, place value; use mental computation, estimation; apply spatial relationships; investigate combining, subdividing, changing shapes; apply similarity, congruency, symmetry; construct data displays; determine probability; generalize patterns; use networks, Venn diagrams in problems; and explain subsets, number theory, logic solutions.

MAP score range: 692-851.

#### Grade 8

#### Step 1

Students perform basic operations with whole numbers; solve simple word problems with whole numbers; identify, describe, compare, and classify geometric figures; read information from tables, graphs, and charts; recognize and extend simple numeric patterns; and order integers.

MAP score range: 541-667.

#### **Progressing**

Students perform basic operations of rational numbers; solve simple word problems using rational numbers; use protractor and ruler to measure; identify lines of symmetry; interpret information from tables, graphs, and charts; find measures of central tendency; extend pictorial patterns; solve equations, using a replacement set; order rational numbers; and interpret simple Venn diagrams.

MAP score range: 668-707.

#### **Nearing Proficiency**

Students solve problems with decimals, percents; identify congruent, similar figures; find elapsed time; convert measurements; find area, perimeter, volume; find probability; use sampling procedure; find measure of central tendency; solve equations; use order of operations; find, order equivalent fractions, decimals; create tree diagrams; generalize patterns; use deductive, inductive reasoning.

MAP score range: 708-743.

#### **Proficient**

Students show processes; apply ratios, proportions, percents; use concepts of congruent, similar shapes; show rotations, reflections, translations; apply perimeter, area, volume; predict from data displays; apply measures of central tendency; describe patterns, relationships, using algebraic equations; apply properties of real numbers; identify primes, multiples, factors, exponents.

MAP score range: 744-784.

#### **Advanced**

Students justify answers; use scale drawings; apply transformation in coordinate grid; compare theoretical and experimental probability; defend data predictions; recognize dependent, independent variables; describe patterns, relationships using algebraic inequalities; use diagrams, patterns, functions in problem solving; apply primes, factors, multiples, exponents; solve problems using strategies.

MAP score range: 785-915.

#### Grade 10

#### Step 1

Students perform basic operations on rational numbers; solve word problems using rational numbers; identify, describe, and draw basic geometric figures; use information from tables, graphs, and charts to solve problems; find measures of central tendency; determine simple probability; solve simple equations; know and apply real number properties; and apply simple counting techniques.

MAP score range: 581-700.

#### **Progressing**

Students express and apply numbers in various forms; simplify exponential expressions; identify similarity, congruence; determine perimeter, area, volume, angle measures; apply measures of central tendency; organize and display data in graphical forms; use graphs to represent data, identify trends; identify patterns, relationships; find factors, multiples; apply simple recursion and basic operations with matrices.

MAP score range: 701-742.

### **Nearing Proficiency**

Students identify important data; recognize reasonable answers; identify transformations; apply synthetic and coordinate representations; use, convert measurements; identify effects of

parameter changes; determine statistical measures; use random variables; describe data with equation; extend, describe patterns; apply number theory concepts; solve networking problems; solve combinations, permutations.

MAP score range: 743-783.

#### **Proficient**

Students communicate processes; use approximations, formulas, estimations; apply, relate properties, measurements of shapes; use scale drawings, similarity, congruence, drawings, transformations; apply measures of statistics; determine simple probabilities; solve problems using expressions, equations, inequalities; solve problems using system of equations, networks, counting techniques; apply recursion; analyze data.

MAP score range: 784-831.

#### **Advanced**

Students defend solutions; comprehend, evaluate visual representations; analyze complex geometric problems; apply theoretical probability; test hypotheses using statistical processes; interpret, analyze patterns, relationships; compare, contrast real numbers, properties, subsystems; form conclusions using inductive and deductive reasoning; analyze, describe the effects of parameter changes.

MAP score range: 832-979.

# Science Abbreviated Achievement-Level Descriptors

#### Grade 3

#### Step 1

Students compare physical characteristics of objects; read simple charts and graphs; describe an object's position relative to another; identify Earth's physical properties; identify simple patterns; describe the difference between living and non-living things; identify characteristics of organisms that allow it to survive; recognize simple cause and effect events.

MAP score range: 444-572.

#### **Progressing**

Students recognize causes of pollution; identify characteristics of mammals; record simple observations; demonstrate magnetic force; list the physical properties of the moon; apply information from life experiences; identify effects of erosion; identify types of forces; identify the effects of the rotation of the Earth.

MAP score range: 573-602.

#### **Nearing Proficiency**

Students position objects relative to others; describe a 4-step food chain; complete a bar graph; identify naturally occurring resources; describe simple solutions to posed problems; list basic survival techniques of small animals; illustrate changes in states of water; describe the life cycle of plants.

MAP score range: 603-640.

#### **Proficient**

Students explain the water cycle; identify causes of physical changes in Earth's crust; connect science to everyday life; explain the difference between stars and planets; interpret the moon and sun rotation/revolving cycles; describe electrostatic force; interpret data and draw conclusions; describe the life cycle of animals.

MAP score range: 641-681.

#### **Advanced**

Students interpret Earth, moon, and sun cycles; describe the properties of sound; analyze simple real-world problems; describe weather-related phenomena; use pictures, models, and numbers to communicate science concepts; interpret simple charts; name the types of forces and how they affect objects; identify producer/consumer relationships.

MAP score range: 682-872.

#### Grade 7

#### Step 1

Students interpret the food pyramid and a food web; apply knowledge from life experiences; describe how plants reproduce; record information in simple charts; explain producer/consumer/decomposer relationship; name forms of energy; explain about animal niches; illustrate how living things adapt to environment.

MAP score range: 520-656.

#### **Progressing**

Students interpret the action-reaction law; create tables to record data; connect science concepts to everyday life; read simple charts, graphs, and tables; describe simple relationships; relate properties of Earth that sustain life; utilize basic properties of light; explain the use of insulators and conductors; identify the basic patterns of movement of the Solar System.

MAP score range: 657-693.

#### **Nearing Proficiency**

Students describe the transmission and prevention of diseases; compare renewable vs. non-renewable resources; create simple charts and tables; describe the effects of earthquakes on Earth's crust; design simple investigations; draw inferences from data; compare asexual vs. sexual reproduction; compare scientific theories vs. laws.

MAP score range: 694-717.

#### **Proficient**

Students interpret complex diagrams and abstract models; identify causes of the greenhouse effect; use technical terms to describe scientific relationships; identify the cause of acid rain and describe its effects; design an experiment to produce reliable data; list some natural resources of Missouri; describe effects of UV light; identify survival characteristics of mammals.

MAP score range: 718-744.

#### Advanced

Students explain the moon phases; use science concepts to infer, predict, and draw conclusions; survey the electrical resistance of common objects; relate temperature to pressure and vice versa; control multiple variables in experiments; analyze impact of technology and human activity on the environment; use patterns in data to extrapolate information.

MAP score range: 745-925.

#### Grade 10

#### Step 1

Students read simple tables and diagrams; identify the resources of oceans; describe causes of population decreases; apply the properties of light; recognize effects of science and technology on society; identify components of experiments; cite advantages and disadvantages of proposed solutions; provide support for conclusions drawn from a set of data.

MAP score range: 553-681.

#### **Progressing**

Students describe the effects of population increases on water supplies; describe the uses of energy transfer; interpret tables,

graphs, and diagrams; cite some benefits of the space program; summarize data charts; identify landfill contamination; apply basic science concepts to everyday life; utilize the properties of solutions; investigate models of genetic frequencies.

MAP score range: 682-717.

#### **Nearing Proficiency**

Students illustrate seismic waves of earthquakes; design repeatable investigations; formulate conclusions supported by data; explain how vaccines work; explain the relationship between velocity and acceleration; describe the role of red blood cells; define tectonic plate movement; compare meiosis and mitosis; propose and evaluate solutions to real-world problems.

MAP score range: 718-760.

#### **Proficient**

Students define the half-life of radioactive elements; illustrate the transfer of heat energy; weigh advantages vs. disadvantages in making decisions; organize and analyze data; explain the conservation of momentum; make use of mechanical energy/work; justify conclusions by referring to data; explain energy flow through trophic levels.

MAP score range: 761-783.

#### **Advanced**

Students explain how transfer of heat takes place on the molecular level; use Periodic Table to derive chemical formulas; communicate knowledge through detailed explanations; calculate the efficiency of simple machines; describe the life cycle of a star; demonstrate the Doppler Effect; relate force and mass to acceleration; explain concept of rotational motion.

MAP score range: 784-941.

# Social Studies Abbreviated Achievement-Level Descriptors

### Grade 4

#### Step 1

Students identify U.S. symbols and show some understanding of community services, local government, how needs are met, the uses of money, and rights and responsibilities of citizens. They know some basic landforms and bodies of water, are learning to locate information, and beginning to read simple aids such as maps.

MAP score range: 518-618.

#### **Progressing**

Students match U.S. symbols with meanings, identify some key U.S. documents and branches of government, and know about major changes in Missouri and the U.S., comparing past to present. They know about basic concepts such as natural resources, recognize information on maps and other visual material, and find locations.

MAP score range: 619-641.

#### **Nearing Proficiency**

Students demonstrate some understanding of civic rights and responsibilities; of democratic principles, processes, and government services; and of supply and demand. They identify causes and effects of events and contributions of historical figures,

use time lines or graphs to make comparisons, and identify features and life forms of regions.

MAP score range: 642-660.

#### **Proficient**

Students identify purposes of U.S. documents, connect civic rights and responsibilities and government services and processes to real-life situations. They apply basic economic concepts, identify problems and changes in institutions or groups, interpret visual material, justify conclusions and decisions, make comparisons, and use multiple resources.

MAP score range: 661-678.

#### Advanced

Students understand democratic principles, explain events and changes in Missouri and the U.S. from different perspectives, and know how geographic elements affect movement and communication. They analyze advantages and disadvantages of solutions to problems, evaluate visual materials, and support their answers to questions.

MAP score range: 679-852.

#### Grade 8

#### Step 1

Students show some understanding of principles and processes of local, state, and national governments, and of simple economic concepts such as reasons for costs. They use geographic tools (graphs/maps/illustrations), identify world sites and regions, and identify environmental consequences of the use of resources.

MAP score range: 545-663.

#### **Progressing**

Students apply basic knowledge of government, comprehend simple primary sources, and identify some of the major events of U.S. and world history. They know economic terms such as taxes, distinguish geographic regions, draw conclusions, identify and apply information from given sources, and recognize fundamental social studies concepts.

MAP score range: 664-677.

#### **Nearing Proficiency**

Students recognize civic rights and responsibilities, purposes of U.S. documents, similarities and differences of government systems; apply knowledge of government; use primary sources; and compare time periods. They apply economic concepts such as market economy, determine relative location, and cause-effect relationships.

MAP score range: 678-697.

#### **Proficient**

Students compare documents, understand civic rights and duties, apply principles and processes of government to given scenarios, identify chronologies of events and inventions, and explain economic concepts such as investment. They analyze geographical sources, explain the impact of cultural and government interactions and changes, and know how to do research.

MAP score range: 698-721.

#### **Advanced**

Students apply principles and processes of government, place events in context, apply economic concepts, and analyze economic decisions and predict their outcomes. They interpret the past, explain the present, support conclusions, justify application of principles to specific situations, describe points of view, and evaluate sources.

MAP score range: 722-889.

#### Grade 11

#### Step 1

Students show some understanding of basic economic ideas, of features of world cultures, and of events in Post-Reconstruction U.S. history and post-1450 world history. They infer some historical, geographic, and economic information from charts, maps, graphs, political cartoons, and illustrations.

MAP score range: 584-698.

#### **Progressing**

Students recognize some of the basic principles of governmental systems, identify the roles of individuals in workplace and political contexts, and identify some issues and contributions of groups in history. They identify consequences of economic conditions and use charts, graphs, and maps to draw some valid conclusions.

MAP score range: 699-712.

#### **Nearing Proficiency**

Students apply principles of government in specific situations, distinguish fact and opinion, and recognize viewpoints in history. They recognize examples of some economic concepts, demonstrate some understanding of economic conditions, and identify some geographic regions and historical patterns and trends.

MAP score range: 713-738.

#### **Proficient**

Students interpret principles of government, explain political systems, describe participation in social institutions, and demonstrate knowledge of other cultures and religions. They draw conclusions and make predictions about historical events and developments, apply economic knowledge to U.S. and global economies, and interpret geographic information.

MAP score range: 739-751.

#### **Advanced**

Students apply abstract principles of our political systems, analyze given U.S. documents, recognize functions of international institutions, know the basis for positions on political issues, and make connections among events, people, places, and actions. They analyze economic decisions and geographic trends and predict their effects.

MAP score range: 752-919.



# Sample Reports

# **Features Included on All Reports**

**A** The assessment series name always appears here for easy identification.

**B** The name of the report is presented next. In this example, it is the Student Roster.

**O** This area of the report is reserved for the name of the individual or group taking the assessment.

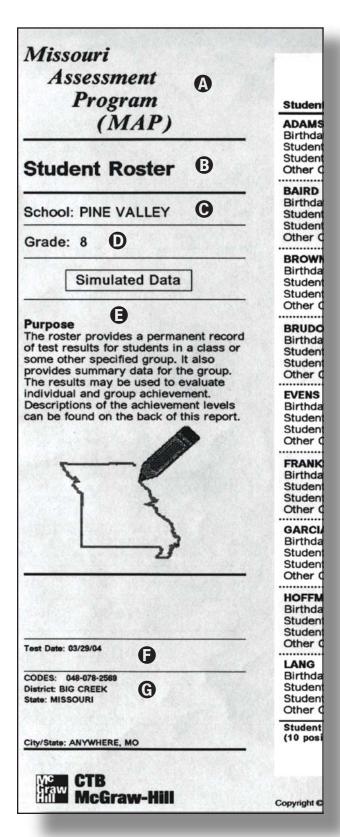
• The grade level of the individual or group is always included on the reports. Each report contains results for one grade level.

Every report contains a purpose statement (the reason for the report and how the information may be used).

The lower part of the left panel provides the information about the test and the students. This information includes the following:

Test date (first day of testing window)

**G** School, district, city, and state (all data not necessarily included on every report)



#### **Student Roster**

The Student Roster provides a permanent record of test results for students in a school by content-area/grade-level assessment. It also provides summary data for the group. The results may be used to evaluate individual and group achievement. Descriptions of the achievement levels can be found on the back of each report page.

• This report presents group results. Students are listed alphabetically with a group summary at the end of the student listing. Read horizontally for the individual student's performance and vertically to the end of the listing for group performance. There are four columns of information.

The second column is the MAP achievement level. A student must take all three sessions in order to receive a MAP Scale Score and achievement level. The assigned level is given along with the score range for the student's achievement level and the student's actual assigned MAP score. The student's MAP score can be compared with the MAP score range for the level to determine how close the student is to the next-higher level. It may also show that a student just reached the level reported.

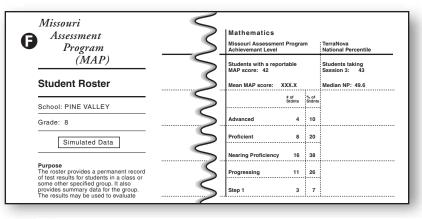
The third column is the *TerraNova* National Percentile (NP) score. *TerraNova* NPs are given to students who took Session 3 of the test. Sessions 1 and 2 do not contribute to this score. This score compares each student's performance to that of the national sample group. An NP score of 65, for example, means that the student's score is higher than the scores of 65 percent of the students in the national sample group for that student's grade.

• The fourth column gives the reason an achievement level was not determined, if applicable.

© Special Codes—This section is a legend for the Special Codes (Student ID#, Student Status, and Other codes) that appear in the block of information under the student's name. This information reflects what the district indicated on the Student Information Sheet

at the time of testing.

The scores of the students on the roster are summarized on the last page of the roster. The average MAP score is reported, as well as the median NP and the number and percentage of students at each achievement level.



#### **Student Label**

The label can be affixed to a student's permanent folder, thereby providing a record of the student's achievement on the MAP.

Missouri Assessment Program	Content Area	Social Studies
WEBBER, PEGGY	Achievement Level	Nearing Proficiency
Grade: 11 Test Date: 03/29/04	Missouri Assessment Program (MAP) Score	716
DOB: 02/26/87	MAP Score Range	713-738
Student ID: 0123456789	TerraNova NP	64

## **Student Report**

The Student Report provides information about performance on the MAP, describing results in terms of five levels of achievement in a content area. It is used for instructional planning, as a point of reference during a parent/teacher conference, and for permanent record keeping. Other sources of information should be used along with this report when determining the student's areas of strength or need.

Achievement-level scores describe what students can do in terms of the content and skills assessed by the MAP. Teachers, students, and parents/guardians can use this information to determine what skills and abilities need to be acquired to enable the student to progress to higher achievement levels. A student in the Proficient or Advanced level has met the standard. Students in the Step 1, Progressing, or Nearing Proficiency levels need to work on the skills described in that level, as well as skills in the next-higher level.

The graphed bar extends upward to the middle of the level achieved by the student regardless of where the student's MAP Scale Score falls. The number at the top of the graphed bar represents the student's MAP Scale Score. This score may be compared to the MAP score range at the bottom of the Descriptions text for the level. The comparison shows how close the student is to the next-higher level. "MAP score range" is used to denote the inclusion of all three test sessions in this score. If one or more test sessions were not taken, the student would not have a MAP Scale Score or an assigned achievement level.

**B** This section identifies the number of points possible and the percent of points earned for each content standard. The number of points possible is given so that you may see the weight of the standard in the MAP. Ranking the percent of points earned from low to high indicates the content/knowledge areas most in need of improvement.

This section identifies the number of points possible and the percent of points earned for each process standard. Coverage of process standards on the MAP varies from year to year.

The *TerraNova* National Percentile is a nationally norm-referenced score that compares the student to a normative sample of students in the nation. In this example, the student has an NP score of 64, which means she scored better than 64 percent of the students in the nation who took *TerraNova*.

The back side of each report page features an explanation to assist parents in understanding the report. This explanation will help in discussing each student's results and is suitable for sending home to parents.

,,,,,,,	Achievement		<b>©</b>			
(MAP)	Levels	Descriptions	Content/Knowledge Standards			
Childont Bonort		Students justify answers; use scale drawings; apply transformation in coordinate grid; compare theoretical	Students will acquire a solid foundation which includes knowledge of	# of pts. possible	% of pts.	
	ADVANCED	recognize dependent, independent variables; describe patterns, relationships using algebraic inequalities; use diagrams, patterns, functions in problem solving; apply primes, factors, multiples, exponents; solve	1. addition, subtraction, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and	6	8	
Grade: 8	bA 10 1	problems using strategies.  MAP score range: 785-915.	concepts in the workplace and other situations			
Simulated Data		Students show processes; apply ratios, proportions, percents; use concepts of congruent, similar shapes; show rotations, reflections, translations; apply perimeter, area, volume; predict from data displays;	<ol> <li>geometric and spatial sense involving measurement (including length, area, volume), trigonometry, and similarity and transformations of shapes</li> </ol>	16	8	
Purpose This report provides information about	1809)	appy measures or central retruency, describe patterns, retationships, using algebraic equations; apply properties of real numbers; identify primes, multiples,	3. data analysis, probability and statistics	12	20	
ent		factors, exponents. MAP score range: 744-784.	<ol> <li>patterns and relationships within and among functions and algebraic, deometric and trigonometric concepts</li> </ol>	9	22	
in a content area. It is used for instructional planning, as a point of reference during a parent-teacher conference, and for permanent-record keeping.	NEARING 720	Students solve problems with decimals, percents; identify congruent, sinilar figures; find elapsed time; convert measurements; find area, perimeter, volume; find probability, use sampling procedure; find measure of central tendency; solve equations; use order of contrainers; find order admission fractions decimals:	5. mathematical systems (including real numbers, whole numbers, integers, fractions), geometry, and number theory (including primes, factors, multiples)	o	08	
	HOPCHICA	create free diagrams; generalize patterns; use deductive, inductive reasoning.	6. discrete mathematics (such as graph theory, counting techniques, matrices)	Ø	92	
~	0	MAP score range: 708-743. Students perform basic operations of rational numbers;	Process/Performance Standards	3		
_	PROCEESING	protector and ruler to measure, identity lines of symmetry, interpret information from tables, graphs,	Students will demonstrate within a content area the ability to		# of pts. possible	% of pts.
7		and charts; find measures of central tendency; extend pictorial patterns; solve equations using a replacement set; order rational numbers; and interpret simple Venn diagrams.	Goal 1 - Gather, analyze & apply information Standard 6 - discover/evaluate relationships Standard 8 - organize data and ideas Standard 10 - apply information, ideas, skills		90 75	858
Birthdein: 08/23/90		MAP score range: 668-707. Students perform basic operations with whole numbers; solve simple word problems with whole numbers; identify, describe, compare, and classify geometric	Goal 3 - Recognize & solve problems Standard 3 - apply one's own strategies Standard 5 - reason logically		<u>4</u> v	98
Test Date: 03/29/04	Se 1	figures; read information from tables, graphs, and charts; recognize and extend simple numeric patterns; and order integers.	Goal 4 - Take social responsibility Standard 1 - support decisions		4	88
CODES: 048-078-2889 School: PINE VALLEY District. BIG CREEK		MAP score range: 541-667.				
State: MISSOURI City/State: ANYWHERE, MO	The achievement level described for that level Your child may also be in the next higher level	rm the majority of what is scribed for the levels below. of the competencies described hed that level of performance.	TerraNova National Percentile: 64  TerraNova is a multiple-choice test. In Mathematics, your st scored better than 64 percent of the students in the nation.	natics, you	ir student on.	

## **Summary Report**

The Summary Report shows the number and percentage of students locally in each of the five achievement levels. There are two Summary Reports: one for the district and one for the building. Instructional priorities can be established using this information along with other sources.

A Students in the Reportable column include all students who made a valid attempt on all sessions of the MAP. These students received a MAP achievement-level score and are represented in their respective achievement levels in both the Reportable and Accountable columns.

The total number of students in the Reportable category and the percent calculations for each achievement level include only those students with a MAP achievement-level score.

**B** The total number of students in the Accountable column should equal the grade-level enrollment at the time the MAP was administered.

Students in the Accountable column include all students in the Reportable column. In addition, the Accountable column includes students who do not have a MAP achievement-level score for a particular content area. These students are shown in the Level Not Determined category, which includes students who did not make a valid attempt on one or more test sessions, who were invalidated, or who were not tested because of other reasons. These students did not receive a MAP achievement-level score.

The total number of students in the Accountable category and the percent calculations for each achievement level include all students in the group.

If the percentages in the Reportable and Accountable columns are significantly different, you may want to inquire why these students did not take all three sessions of the test.

You should work toward having the majority of students in the Proficient and Advanced levels. Over time, the data should show an upward trend, with more students in the upper levels and fewer students in the lower levels.

The report gives "can do" statements (descriptions) for each achievement level. Students at a given level can perform the majority of what is described for that level and even more of what is described for the levels below. Students may also be capable of performing some of the goals described in the next-higher level.

**D** TerraNova summary scores provide comparisons across grades and content areas. Consideration should always be given to the number of students contributing to mean or median scores. Larger numbers of students yield a more stable, reliable picture of performance.

Grade: 8

## **Content Standards Summary Report**

The Content Standards Summary Report provides general indications of local strengths and needs on the content standards, based on comparisons of local scores to state results. This information will be useful in refining curriculum and planning instruction.

• These are the content standards measured by the MAP. See page 2 of this guide for information about these standards.

**B** The Mean Percent Points Correct shows the average number of score points correct for a group of students. For example, if your local group has a mean percent points correct of 49 percent, your students, on average, got 49 percent of the score points correct for a specific content standard. Score points, rather than the number of items correct, are counted, because some of the constructed-response items and performance events have multiple score points possible.

When comparing local mean percent points correct to the state mean percent points correct, always take into consideration your local confidence band. If the state mean percent points correct is within the range of your local confidence band, your school or district is doing as well as the state. If your confidence band is above the state mean percent points correct, your school or district is above the state average.

#### What does the confidence band mean?

Each school or district represents a sample of the state's population. In small schools, reporting results for a small number of students leads to an inability to ensure that the percent reported adequately represents the school or district. This is referred to as *sampling error*. Because of the small sample size, small schools are given a greater benefit of the doubt, or confidence band, than large schools. Therefore, when comparing your mean percent points correct with those of the state, this sampling error is always taken into consideration.

Missouri Assessment Program	Performance on Show-Me Standards - Mathematics	athematics (3)
(MAP)	Content Standards	Mean Percent Points Correct: ▲ Local Confidence Band ■ State
Summary Report	1. addition, subtraction, multiplication and division; other number sense, including numeration and estimation; and the application of these operations and concepts in the workplace and other situations (no. of points possible = 19)	80% 60%
Grade: 8	<ol> <li>geometric and spatial sense involving measurement (including length, area, volume), trigonometry, and similarity and transformations of shapes (no. of points possible = 16)</li> </ol>	44%
Simulated Data		57.% ————————————————————————————————————
This report provides general indications of local strengths and needs on the content standards, based on comparisons of local scores to state results. This information	patterns and relationships within and among functions and algebraic, geometric and trigonometric concepts (no. of points possible = 10)	38%
will be useful as you refine curriculum and plan instruction.	<ol> <li>mathematical systems (including real numbers, whole numbers, integers, fractions), geometry, and number theory (including primes, factors, multiples) (no. of points possible = 9)</li> </ol>	%09 %09
	6. discrete mathematics (such as graph theory, counting techniques, matrices) (no. of points possible = 9)	%ES
Number of Reportable Students: 218		
Test Date: 09/29/04	Interpretation of Mean Percent Points Correct "Mean Percent Points Correct" indicates the average (or arithmetic mean) percentage of the total number of possible points that a group of students earned on	Interpretation of Confidence Bands  Each school or district represents a sample of the state's population.  When reporting results for a small number of students, it is difficult to be certain that the percent of points reported adequately
CODES: 048-078 State: MISSOURI City/State: ANYWHERE, MO	the items assessing a particular content standard. For example, if your students' mean percent points correct on a particular content standard is 60%, you know that they earned an average of 60% of the points possible on the items associated with this standard.	represents the school or district. This situation is a result of sampling error. Thus, small schools or districts are given a greater "benefit of the doubt," or confidence band, than large schools or districts. This report shows your confidence band, which allows you to take this sampling error into account when comparing your mean percent points correct with those of the state.
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### **Disaggregate Report**

The Disaggregate Report presents disaggregated results for specific categories (or subgroups) of students. These data are compiled from "**Reportable**" scores and may be used to prepare the Annual School District Report Card.

- A These are the populations (groups) that are represented in the report.
- **B** These are the student-status categories for which achievement-level data are provided. The information for the categories is collected from the Student Identification Sheets on the test books.
- The Number of Reportable Students represents all students who received a MAP achievement level.
- The Achievement Levels and Grouped Achievement Levels represent the number of students and the percentage of students in each achievement level by group and category. The Grouped Achievement Levels combine the Advanced and Proficient levels into one group. The Progressing and Step 1 levels are combined into another group. A student in the At or Above Proficient group has met the MAP standard. Results are not provided for categories with fewer than five students.
- The *TerraNova* median NP is a nationally norm-referenced score. The score represents the middle score for the particular group or category. Fifty percent of the scores are below this score, and 50 percent are above it. Results are not provided for categories with fewer than 10 students.



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